

Remarks on Rendering and Modeling in the NIST Optical Reflectance Project

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Collaborators on Rendering Project:

- Gary Meyer and Harold Westlund - University of Oregon: built interface iBRDF and rendered NIST data
- Gregory Ward - Silicon Graphics Inc., originator of Radiance rendering software
- Michael Metzler- ISCIENCES Corp., wrote engineering code and developed the BRDF model used in the NEFDS database

STEPS TAKEN: Changes in Rendering Software and Modeling

- We use a semi-empirical approach; measurement based BRDF model.
- NEFDS database of BRDF measurements and model is used as a prototype for the interface to rendering software. (Meyer, Westlund and Metzler)
- Construction of iBRDF- enhanced form of Radiance designed for input from measurement based BRDF. (Meyer, Westlund and Peter Walker U.O.)
- iBRDF interface used to render data. (Meyer et al)

Materials Rendered with iBRDF

- Coated black glass samples with controlled roughness.
BRDF model used NIST topographical data.
NIST optical data was used for comparison.
(Meyer et al, E. Marx, T.Vorburger at NIST)

COMPLETES ALL PHASES OF THE PROJECT
FOR THIS MATERIAL.

- Materials from NEFDS database

Steps taken so far: Changes in Measurement Protocol

- Optical measurements of panels coated with metallic paint using protocol used in NEFDS database. (M. Nadal, NIST, Metzler, ISCIENCES)
- BRDF model with parameters fitted from the measurements is being developed. (Metzler, ISCIENCES)
- BRDF model to be used in iBRDF to render panels. (Meyer et al)

Future Prospects

Need for rational presentation of product appearance for e-commerce applications

- Clearinghouse for Rendering Visual Information (CLEARVU) ?
- Repository for BRDF, BTF data, models and rendering interface(s).
- Develop rendering applications to design and evaluation of product appearance
- Encourage development of new measurements and models that combine convenience and suitability for rendering

Rendered Image of Coated Epoxy Sample

